

**REPORT OF THE UTILITIES DEPARTMENT
OF
THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA**

DOCKET NO. 2001-3-E

DUKE POWER

REPORT OF UTILITIES DEPARTMENT
THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA
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REPORT OF UTILITIES DEPARTMENT

PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

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REPORT OF FUEL ADJUSTMENT ANALYSIS

SCOPE OF EXAMINATION

The Commission's Utilities Department Staff analyzed the Company's procedures and practices pertaining to its fuel operation. Staff's examination consisted of the following:

- 1) Review of the Company's monthly fuel reports including:
 - a) Power Plant Performance Data Reports
 - b) Major Unit Outage Reports
 - c) Generation Mix
 - d) Generation Statistics
 - e) Retail Comparison of MWH Sales
 - f) Retail Comparison of Fuel Costs
- 2) Review of the Company's currently approved Adjustment for Fuel Costs tariff.
- 3) History of Cumulative Recovery Account.
- 4) Calculation of fuel costs to be included in the base rates for June 2001 through May 2002.

REVIEW OF COMPANY'S MONTHLY FUEL REPORTS

The Company files with this Commission monthly reports that include power plant performance data, major unit outages, generation mix, and other reports that provide the Staff pertinent data on which to evaluate the Company's fuel operating expenses.

Selected information from the Power Plant Performance Data Reports for nuclear and fossil plants is shown on **Exhibit No. 1**. It includes a listing of capacity factors and equivalent availability factors for each unit by month for the period and also includes the yearly capacity factors (1997-2000) and the lifetime (cumulative) capacity factor of the nuclear units. These factors are expressed as a percentage. This percentage figure can be a useful index when attempting to locate or identify a particular problem or unusual occurrence.

Pursuant to S.C. Code Ann. Section 58-27-865 (Supp. 2000) certain criteria are established for review of a utility's effort to minimize fuel expenses. In evaluating a utility's fuel costs under this section, it is necessary to examine and determine whether the utility has made every reasonable effort to minimize fuel costs associated with the operation of its nuclear generation system while "giving due regard to reliability of service, economical generation mix, generating experience of comparable facilities and minimization of the total cost of providing service."

The Staff's Nuclear Unit Outage Report considers each outage experienced by unit, giving the inclusive dates of the outage, days out of service, type of outage (Scheduled or Forced), the reason for the outage, and the corrective action taken. This information covers the period, April 2000 through March 2001, that is being considered in this proceeding and is shown in **Exhibit No. 2A**. Staff compiled this data through review of Company documents, NRC documents, and interviews with Company personnel. The Company's Nuclear Units performed very well during this period.

The Staff's Fossil Unit Outage Report is a listing of plants by unit, duration of outage (greater than 100 hours), reason for down time, and corrective action taken to return the plant to service. The information specifically reviewed for this proceeding is for the months of April 2000 through March 2001 and is included in **Exhibit No. 2B**. These Units' Availability Factors were in the 90 plus percentile for the greater portion of this period.

Staff reviewed and compiled a percentage Generation Mix statistic sheet for the Company's fossil, nuclear and hydraulic plants for April 2000 through March 2001. The fossil generation ranged from a high of 49% to a low 39%. The nuclear generation ranged from a high of 61% to a low of 51%. The percentage of generation by hydro ranged from a high of 1% to a low of 0%. This information is included in **Exhibit No. 3**.

The Staff also collected and reviewed certain Generation Statistics of Major Plants for the 12 months ending March 31, 2001. This data is presented on **Exhibit No. 4**. This Exhibit shows the Company's major plants by name, type of fuel used, fuel cost in cents per kilowatt-hour to operate and total megawatt-hours generated for the period. The nuclear fueled Catawba Station was lowest in cost at 0.41 cents per kilowatt-hour. The highest amount of generation of 19,448,038 megawatt-hours was produced at the Oconee Nuclear Station.

Utilities Department **Exhibit No. 5** shows a comparison of the Company's original retail megawatt-hour (MWH) estimated sales to the actual sales for the period from April 2000 through March 2001. The original projections ranged from an under-estimate of 4.22% in May 2000 to an over-estimate of 10.76% in March 2001 with a total over-estimate of 1.27% for the period.

Utilities Department **Exhibit No. 6** shows a comparison of the Company's original fuel cost projections to the costs actually experienced for the months of April 2000 through March 2001. The original projections ranged from an

over-estimate of 24.61% for April 2000 to an under-estimate of 6.65% for December 2000. The difference between actual and original projection of these fuel costs is further delineated graphically on Utilities Department **Exhibit No. 7.**

REVIEW OF THE COMPANY'S CURRENTLY APPROVED RETAIL ADJUSTMENT FOR FUEL COSTS

Staff has reviewed the Company's currently approved Retail Adjustment for Fuel Costs and found it to continue to operate properly and therefore Staff does not recommend any modifications at this time. **Exhibit No. 8** is a copy of the Company's currently approved Adjustment for Fuel Costs tariff.

HISTORY OF THE CUMULATIVE RECOVERY ACCOUNT

Exhibit No. 9 is a history of the cumulative recovery account balances from inception in 1979 to March 2001.

CALCULATION OF BASE RATE FUEL COST COMPONENT FOR JUNE 2001 THROUGH MAY 2002.

Utilizing the currently projected sales and fuel cost figures for the period June 2001 through May 2002 and including the projected over-recovery balance of \$15,862,631 in the cumulative recovery account through May 2001 (See Audit Exhibit G), the average fuel expense is estimated to be 1.0281 cents per kilowatt-hour. Applying this fuel factor to the period would create an ending period estimated \$7,280 under-collection in the cumulative recovery account.

The Commission has consistently expressed its expectation that the Company exercise all reasonable prudence and efficiency in its fuel purchasing practices and aggressively control the operation and maintenance of its production facilities to assure the lowest fuel costs possible. Also, the Commission has directed the Staff to monitor the Company's plant operations and fuel purchasing to insure that any inefficient or negligent practice is brought to the Commission's attention.

Exhibit No. 10 is a table of Projections of the Cumulative Recovery Account for various fuel base levels for the twelve month period ending May 2002. Also indicated in the table are the projected results using the current fuel factor base component of 0.9500 cents per kilowatt-hour, which is also the Company's proposed factor.

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POWER PLANT PERFORMANCE DATA REPORT
CAPACITY FACTOR (%)

UNIT	MW RATING	LIFE TIME	YEAR 1997	YEAR 1998	YEAR 1999	YEAR 2000	APR 2000	MAY 2000	JUN 2000	JUL 2000	AUG 2000	SEP 2000	OCT 2000	NOV 2000	DEC 2000	JAN 2001	FEB 2001	MAR 2001
CATAWBA 1	1129	77	93	90	92	78	103	102	101	101	101	101	39	29	102	95	94	103
CATAWBA 2	1129	78	87	88	90	79	63	103	86	102	102	102	103	103	104	104	99	104
MCGUIRE 1	1100	68	71	92	89	70	105	97	103	102	101	103	104	105	106	84	104	27
MCGUIRE 2	1100	77	67	103	89	78	105	104	103	100	83	1	57	98	105	104	105	105
OCONEE 1	846	72	43	81	84	73	102	102	101	100	99	94	100	74	0	42	102	101
OCONEE 2	846	74	79	76	84	75	99	102	100	101	100	99	101	101	102	103	102	102
OCONEE 3	846	74	63	78	99	75	40	15	101	101	100	100	101	101	102	102	58	0
TOTAL	6996	74	73	88	90	76	89	91	99	101	98	85	85	87	91	92	96	79

EQUIVALENT AVAILABILITY FACTOR

UNIT	MW RATING	APR 2000	MAY 2000	JUN 2000	JUL 2000	AUG 2000	SEP 2000	OCT 2000	NOV 2000	DEC 2000	JAN 2001	FEB 2001	MAR 2001
BELEWS CREEK 1	1120	0	6	20	45	59	44	75	85	100	53	100	97
BELEWS CREEK 2	1120	100	100	76	99	100	98	99	91	24	100	88	41
CLIFFSIDE 5	562	40	73	94	98	91	100	89	100	87	95	100	95
MARSHALL 3	660	93	71	94	100	100	100	71	92	100	96	99	95
MARSHALL 4	660	69	89	91	99	88	72	92	93	100	100	5	0
TOTAL	4122	59	84	69	84	86	80	86	91	78	86	81	66
CATAWBA 1	1129	99	99	99	99	99	99	42	29	99	92	91	100
CATAWBA 2	1129	62	100	84	99	99	99	100	100	100	100	95	100
MCGUIRE 1	1100	98	91	98	95	95	95	99	99	99	80	99	29
MCGUIRE 2	1100	99	99	99	96	96	3	56	93	99	99	100	100
OCONEE 1	846	100	100	100	99	99	93	100	73	0	43	100	99
OCONEE 2	846	97	100	98	99	99	98	100	100	99	100	100	100
OCONEE 3	846	40	17	99	99	99	99	100	100	100	100	57	0
TOTAL	6996	85	86	97	98	98	84	85	87	85	88	92	75

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UTILITIES DEPARTMENT
EXHIBIT NO. 1

DUKE POWER
NUCLEAR UNIT OUTAGE REPORT
April 1, 2000 – March 31, 2001

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 UTILITIES DEPARTMENT
 EXHIBIT NO. 2A
 PAGE 1 OF 2

<u>UNIT</u>	<u>DATE OF OUTAGE</u>	<u>DAYS/TYPE*</u>	<u>REASON FOR OUTAGE AND CORRECTIVE ACTION</u>
OCONEE 1	11/23/00 – 01/17/01	55.33/S	Refueling outage extended due to leakage found in the Reactor Vessel Head where the Control Rod Drives penetrate, turbine generator vibration.
OCONEE 2	NONE		
OCONEE 3	04/13/00 – 05/20/00	37.71/S	Refueling Outage. Shortest R/O to date.
	05/21/00 – 05/22/00	1.23/S	Turbine overspeed test.
	05/24/00 – 05/28/00	3.42/F	Balanced turbine generator occasioned by high vibration.
	02/17/01 – 04/01/01	42.98/S	Replace relief valve on pressurizer. Also found leaks on reactor vessel head control rod drive(CRD) mechanism due to small cracks in CRD nozzle welds.
MCGUIRE 1	05/25/00 – 05/27/00	1.76/F	Failed power source breaker resulted in a low Steam Generator Feedwater level signal and subsequent reactor trip.
	01/23/01 – 01/28/01	5.57/F	Unit tripped due to relief valve on pressurizer leaking.
	03/09/01 – 04/01/01	22.02/S	Refueling outage included 10 year ISI. Outage continuing.
MCGUIRE 2	09/01/00 – 10/13/00	41.17/S	Refueling outage.
	10/13/00 – 10/13/00	0.04/S	Turbine overspeed trip test.
	11/15/00 – 11/17/00	1.51/F	Failed power circuit breaker caused false signal in temperature Sensor resulting in the unit being manually taken off line.

DUKE POWER
NUCLEAR UNIT OUTAGE REPORT
 April 1, 2000 – March 31, 2001

<u>UNIT</u>	<u>DATE OF OUTAGE</u>	<u>DAYS/TYPE*</u>	<u>REASON FOR OUTAGE AND CORRECTIVE ACTION</u>
CATAWBA 1	10/14/00 – 11/20/00	37.52/S	Refueling outage.
	11/20/00 – 11/21/00	.08/S	Turbine overspeed trip test.
	01/17/01 – 01/19/01	1.58/F	Turbine tripped during replacement of defective main turbine limit switch.
CATAWBA 2	06/05/00 – 06/08/00	2.71/F	Repaired malfunctioning 2B main Feedwater pump turbine speed Control.

TYPE* F- Forced S- Scheduled

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MAJOR FOSSIL UNIT OUTAGE REPORT
 (100 HRS OR GREATER DURATION)
 APRIL 1, 2000 – MARCH 31, 2001

<u>MONTH</u>	<u>UNIT</u>	<u>HRS/TYPE*</u>	<u>REASON FOR OUTAGE AND CORRECTIVE ACTION</u>
APR 00	Belews 1	719/S	Major turbine overhaul.
	Cliffside 5	333/S	Boiler inspections.
	Marshall 4	222/F	Worn rotor collector rings replaced.
MAY 00	Marshall 3	176/S	Boiler overhaul.
	Belews 1	540/S	Major turbine overhaul.
	Belews 1	113/F	Repairs due to HP turbine vibration problems associated with steam seal design and main Bearings #1 through #4.
JUN 00	Belews 1	287/S	HP turbine vibration (see May outage).
	Belews 2	168/S	Repairs due to HP turbine thrust bearing wear and vibration on #2 and #3 bearings.
JUL 00	Belews 1	327/S	HP turbine vibration (see May outage).
AUG 00	Belews 1	290/F	Furnace wall and Superheater tube leak repairs.
SEP 00	Belews 1	398/F	Boiler implosion due to inability of fans to remove gases from the boiler. The fans power source and transfer switch failed.
	Marshall 4	201/S	Boiler inspections.
OCT 00	Belews 1	182/F	Economizer tube leak.
	Marshall 3	211/S	Boiler inspections.
NOV 00	Marshall 4	174/S	Repairs to Turbine control valves linkage.
DEC 00	Belews 2	323/S	Repair cracks in the Governor and throttle valve seats.
	Belews 2	240/F	First reheater tube leak.
JAN 01	Belews 1	209/S	Repair Governor and throttle valve seats.
	Belews 1	125/F	First superheater tube leak.
FEB 01	Marshall 4	636/S	Boiler overhaul.
MAR 01	Belews 2	370/S	Boiler inspections.
	Marshall 4	744/S	Boiler overhaul.

TYPE* F – Forced S – Scheduled

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NET GENERATION MIX
APRIL 1, 2000 - MARCH 31, 2001

<u>MONTH-YEAR</u>	<u>PERCENTAGE</u>		
	<u>FOSSIL</u>	<u>NUCLEAR</u>	<u>HYDRO</u>
April-00	39	60	1
May-00	43	57	0
June-00	42	58	0
July-00	42	58	0
August-00	46	54	0
September-00	46	54	0
October-00	43	57	0
November-00	46	54	0
December-00	49	51	0
January-01	46	54	0
February-01	39	61	0
March-01	47	52	1

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GENERATION STATISTICS OF MAJOR PLANTS

APRIL 1, 2000 –MARCH 31, 2001

PLANT	TYPE FUEL	AVERAGE FUEL COST (CENTS/KWH*)	GENERATION (MWH)
Catawba	Nuclear	0.41	18,525,894
Oconee	Nuclear	0.42	19,448,038
McGuire	Nuclear	0.42	17,723,067
Marshall	Coal	1.25	14,502,806
Cliffside 5	Coal	1.36	3,657,580
Belews Creek	Coal	1.26	12,380,208

(*) The average fuel costs for coal-fired plants include oil cost for start-up and flame stabilization.

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SOUTH CAROLINA RETAIL COMPARISON OF ESTIMATED TO ACTUAL ENERGY SALES

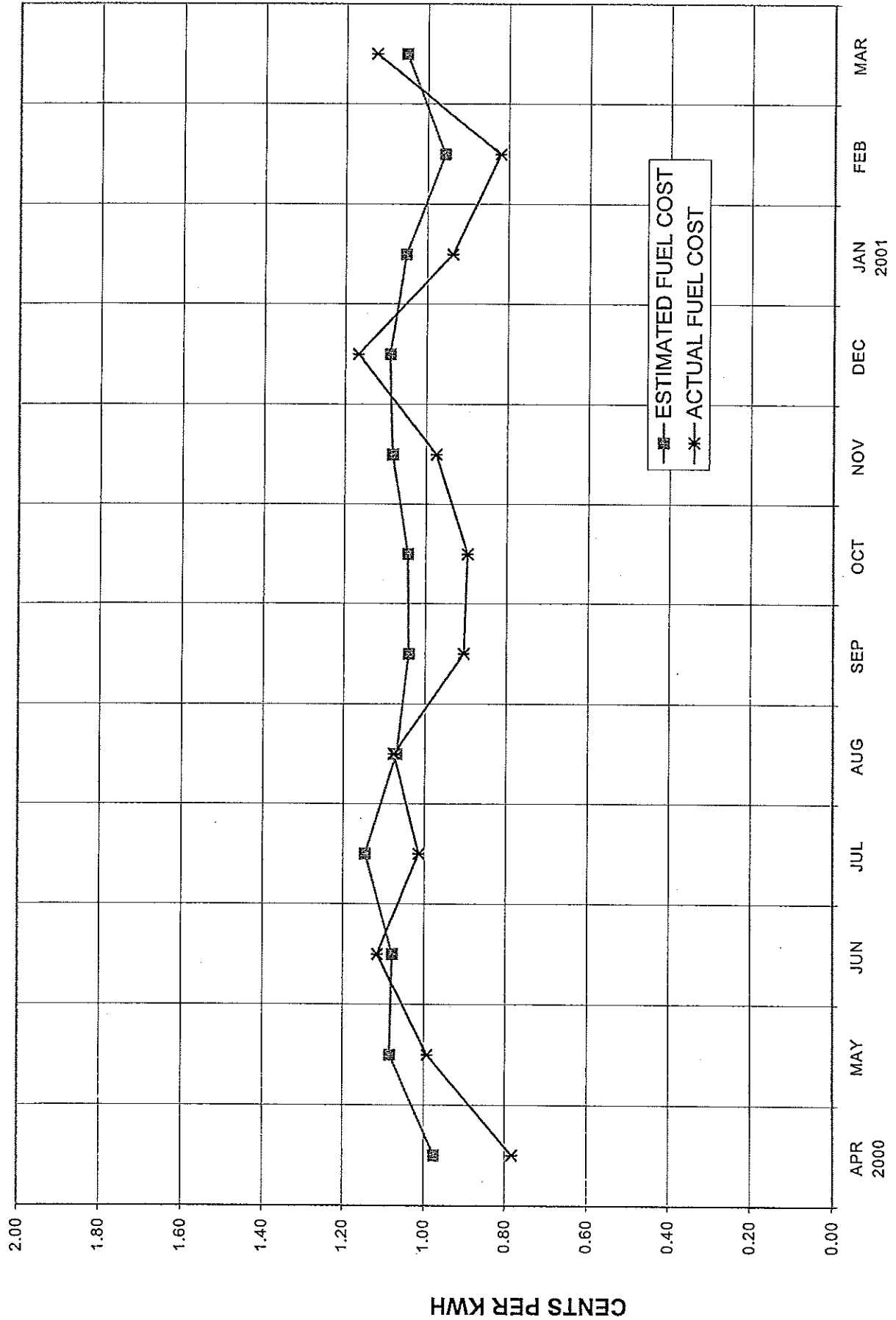
	2001													
	2000	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	TOTAL
[1] ESTIMATED SALES [MWH]		1,741,820	1,732,147	1,953,691	2,038,668	2,221,197	2,082,874	1,761,825	1,716,028	1,827,592	1,941,929	1,908,084	1,812,678	22,738,533
[2] ACTUAL SALES [MWH]		1,680,125	1,808,385	2,029,484	2,049,788	2,123,071	2,088,756	1,765,742	1,627,138	1,863,379	1,948,413	1,833,327	1,636,605	22,454,213
[3] AMOUNT DIFFERENCE [1]-[2]		61,695	-76,238	-75,793	-11,120	98,126	-5,882	-3,917	88,890	-35,787	-6,484	74,757	176,073	284,320
[4] PERCENT DIFFERENCE [3]/[2]		3.67%	-4.22%	-3.73%	-0.54%	4.62%	-0.28%	-0.22%	5.46%	-1.92%	-0.33%	4.08%	10.76%	1.27%

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EXHIBIT NO. 5

DUKE POWER
SOUTH CAROLINA RETAIL COMPARISON OF ESTIMATED TO ACTUAL FUEL COST
(CENTS /KWH)

	2000	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2001	JAN	FEB	MAR
[1] ORIGINAL PROJECTION	0.9747	1.0838	1.0782	1.1458	1.0696	1.0404	1.0439	1.0829	1.0900	1.0512	0.9556	1.0520		
[2] ACTUAL EXPERIENCE	0.7822	0.9918	1.1154	1.0136	1.0760	0.9046	0.8965	0.9744	1.1677	0.936	0.8193	1.1258		
[3] AMOUNT IN BASE	1.000	1.000	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500		
[4] VARIANCE FROM ACTUAL [1-2]/[2]	24.61%	9.28%	-3.34%	13.04%	-0.59%	15.01%	16.44%	11.14%	-6.65%	12.31%	16.64%	-6.56%		

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ESTIMATED TO ACTUAL FUEL COST



APRIL 2000 - MARCH 2001

Duke Power

Electricity No. 4
South Carolina Fourteenth Revised Leaf No. 50B
Superseding South Carolina Thirteenth Revised Leaf No. 50B

ADJUSTMENT FOR FUEL COSTS

APPLICABILITY

This adjustment is applicable to and is a part of the Utility's South Carolina retail electric rate schedules.

The Public Service Commission has determined that the costs of Fuel in an amount to the nearest one ten-thousandth of a cent, as determined by the following formula, will be included in the base rates to the extent determined reasonable and proper by the Commission.

$$F = \frac{E}{S} + \frac{G}{S_1}$$

Where:

F = Fuel cost per kilowatt-hour included in base rate, rounded to the nearest one ten-thousandth of a cent.

E = Total Projected system Fuel costs:

- (A) Fuel consumed in the Utility's own plants and the Utility's share of fuel consumed in jointly owned or leased plants. The cost of fossil fuel shall include no items other than those listed in Account 151 of the Commission's Uniform System of Accounts for Public Utilities and Licensees plus SO₂ emission allowances recorded in Account 509. The cost of nuclear fuel shall be that as shown in Account 518 excluding rental payments on leased nuclear fuel and except that, if Account 518 also contains any expense for fossil fuel which has already been included in the cost of fossil fuel, it shall be deducted from this account.

Plus

- (B) Purchased power fuel costs and applicable SO₂ emission allowances such as those incurred in unit power and Limited Term power purchases where the fuel costs and applicable SO₂ emission allowances associated with energy purchased are identifiable and are identified in the billing statement.

Plus

- (C) Interchange power fuel costs and applicable SO₂ emission allowances such as Short Term, Economy and other where the energy is purchased on economic dispatch basis.

Energy receipts that do not involve money payments such as Diversity energy and payback of storage energy are not defined as purchased or interchange power relative to this fuel calculation.

Minus

- (D) The cost of fuel and applicable SO₂ emission allowances recovered through intersystem sales including the fuel costs and applicable SO₂ emission allowances related to economy energy sales and other energy sold on an economic dispatch basis.

Energy deliveries that do not involve billing transactions such as Diversity energy and payback of storage energy are not defined as sales relative to this fuel calculation.

S = Projected system kilowatt-hour sales excluding any intersystem sales.

G = Cumulative difference between jurisdictional fuel revenues billed and fuel expenses at the end of the month preceding the projected period utilized in E and S.

S₁ = Projected jurisdictional kilowatt-hour sales for the period covered by the fuel costs included in E.

The appropriate revenue-related tax factor is to be included in these calculations.

The fuel cost F as determined by SCPSC Order No. 2000-0447 for the period June 2000 through May 2001 is 0.9500 cent per kilowatt-hour.

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HISTORY OF CUMULATIVE RECOVERY ACCOUNT

<u>PERIOD ENDING</u>	<u>OVER (UNDER)\$</u>
May 1979 - Automatic Fuel Adjustment in Effect	
November-79	1,398,442
May-80	11,322,948
November-80	4,588,331
May-81	(5,760,983)
November-81	(13,061,000)
May-82	(14,533,577)
November-82	(4,314,612)
May-83	20,915,390
November-83	14,192,297
May-84	18,245,503
November-84	14,478,363
May-85	2,551,115
November-85	(553,465)
May-86	(1,318,767)
November-86	(29,609,992)
May-87	(27,241,846)
November-87	(29,329,168)
May-88	(9,373,768)
November-88	6,544,914
May-89	6,067,739
November-89	11,372,399
May-90	15,421,968
November-90	2,939,303
May-91	17,068,483
November-91	21,265,000
May-92	21,080,856
November-92	11,553,801
May-93	16,959,555
November-93	221,606
May-94	6,609,897
November-94	1,037,659
May-95	5,088,619
November-95	(377,507)
March-97	(13,299,613)
March-98	(1,956,794)
March-99	13,044,443
March-00	26,703,441
March-01	20,367,528

**DUKE POWER
 PROJECTIONS OF THE CUMULATIVE RECOVERY ACCOUNT
 FOR THE TWELVE MONTH PERIOD ENDING
 MAY 2002**

	FUEL BASE (CENTS / KWH)	PROJECTED CUMULATIVE OVER/(UNDER) RECOVERY (\$)
	0.9000	(29,652,804)
CURRENTLY APPROVED & COMPANY PROPOSED	0.9500	(18,081,561)
	0.9700	(12,295,940)
	1.0000	(6,510,318)
	1.0250	(724,697)
	1.0275	(146,135)
	1.0280	(30,422)
ZERO UNDER	1.0281	(7,280)
ZERO OVER	1.0282	15,863
	1.0290	201,002
	1.0300	432,427
	1.0350	1,589,552
	1.0500	5,060,925
	1.0750	10,846,546
	1.1000	16,632,168
	1.1025	17,210,730